FLORIDA ATLANTIC UNIVERSITY™

Graduate Programs—NEW COURSE PROPOSAL

UGPC APPROVAL _____
SCNS SUBMITTAL _____
CONFIRMED _____
CATALOG POSTED _____
WEB POSTED _____
SIS POSTED _____

DEPARTMENT NAME: Biological Sciences

COLLEGE OF: Science

RECOMMENDED COURSE IDENTIFICATION:

PREFIX (3 alpha characters) BSC **LEVEL** (1 number) 6 **COURSE NUMBER** (3 numbers) 366 **LAB CODE** (L or C?) C

COMPLETE COURSE TITLE: (30 or fewer characters inc. spaces)

Conservation Biology

EFFECTIVE DATE (first term course will be offered): Fall 2008 **CIP**

CREDITS: 3	**LAB/DISCUSSION:** 0	Textbook Information: Principles of Conservation Biology. 2006. M. J. Groom, G. K. Meffe, C. R. Carroll, and contributors. Third edition.
LECTURE: 3	**FIELD WORK:** 0	

GRADING: (X in front of option) X **REGULAR**

COURSE DESCRIPTION, NO MORE THAN 3 LINES:

A study of the principles and practice of conservation biology. Emphasis will be on the primary threats to biodiversity and the application of contemporary tools to solve conservation problems.

PREREQUISITES: None

COREQUISITES: None

MINIMUM QUALIFICATIONS NEEDED TO TEACH THIS COURSE:

Ph.D. in a relevant field (Biology, Ecology, Wildlife Science)

Any other departments and/or colleges that might be affected by the new course must be consulted.
List entities that have been consulted and attach written comments from each.

None

Faculty Contact, Email, Complete Phone Number:

Dale Gawlik, dgawlik@fau.edu, 561-297-3333

SIGNATURES

Approved by:

Department Chair: _____

College Curriculum Chair: _____

College Dean: _____

UGPC Chair: _____

Dean of Graduate Studies: _____

Date:

10.07.08

SUPPORTING MATERIALS

Syllabus—must include course objectives. See UGPC Guidelines.

Written Comments—required from all departments affected.

Go to: http://graduate.fau.edu/gpc/ to download this form.

Email this form and syllabus to csinady@fau.edu one week ***before*** the University Graduate Programs Committee meeting so that materials may be viewed on the UGPC website by committee members prior to the meeting.

Syllabus

Conservation Biology (BSC-6XXX)
3 credits, no pre-requisites

Department of Biological Sciences
Charles E. Schmidt College of Science
Florida Atlantic University

Instructor

Dr. Dale Gawlik, Sanson Science 271, dgawlik@fau.edu, 297-3333

Online resource

Blackboard for BSC 6936. Students should check the site often to keep current with changes in the course and to obtain course material. The web site contains the syllabus, lecture notes, handouts, and many useful links. It also offers students the opportunity to monitor their grades at any time.

Required text

Principles of Conservation Biology. 2006. M. J. Groom, G. K. Meffe, C. R. Carroll, and contributors. Third edition. Sinauer Associates, Inc., Sunderland, MA.

Suggested reading

Bowen, B. W. and J. Roman. 2005. Gaia's handmaidens: the Orlog model for conservation biology. Conservation Biology 19: 1037-1043.

Callicott, J. B. and K. Mumford. 1997. Ecological sustainability as a conservation topic. Conservation Biology 11: 32-40.

Costanza, R., R. d'Arge, R. de Groot, S. Farber, M. Grasso, B. Hannon, K. Limburg, S. Naeem, R. V. O'Neill, J. Paruleo, R. G. Raskin, P. Sutton, and M. van den Belt. 1997. The value of the world's ecosystem services and natural capital. Nature 387: 253-260.

Fjelds, J. 2007. How broad-scale studies of patterns and processes can serve to guide conservation planning in Africa. Conservation Biology 21: 659-667.

Laurance, W. F., H. L. Vasconcelos, and T. E. Lovejoy. 2000. Forest loss and fragmentation in the Amazon: implications for wildlife conservation. Oryx 34: 39-45.

Lawler J. J., J. E. Aukema, J. B, Grant, B. S. Halpern, P. Kareiva, C. R. Nelson, K. Ohleth, J. D. Olden, M. A. Schlaepfer, B. R. Silliman, and P. Zaradic. 2006. Conservation science: a 20-year report card. Frontiers in Ecology and the Environment 4: 473-480.

Malcolm, J. R., C. Liu, R. P. Neilson, L. Hansen, and L. Hannah. 2006. Global warming and extinctions of endemic species from biodiversity hotspots. Conservation Biology 20: 538-548.

Newburn, D. S. Reed, P. Berck, and A. Merenlender. 2005. Economics and land-use change in prioritizing private land conservation. Conservation Biology 19: 1411-1420.

Roberts, C. M., J. P. Hawkins, and F. R. Gell. 2005. The role of marine reserves in achieving sustainable fisheries. Philosophical Transactions of the Royal Society B 360: 123–132.

Course objectives

Students that have completed the course will possess:

1. An understanding of the difference between conservation biology and other ecological disciplines.
2. The ability to recall patterns of biodiversity including its many hierarchical levels.
3. A solid understanding of the processes driving populations, communities, and ecosystems.
4. The ability to discern the primary threats to biodiversity.
5. The expertise to distinguish among the best approaches for conserving biological diversity and some of the contemporary tools.
6. A clear notion of how society shapes conservation efforts, including the forces of economics, policy, ethics, and institutions.
7. Excitement for at least one aspect of conservation.

Course components and procedures

The course will be taught with mix of active and passive teaching techniques. Passive techniques include traditional textbook material, assigned papers, and lectures. The *text* will be the backbone of the course and students should read it as background for lecture. Text material will be covered on exams. *Lectures* will focus on selected concepts from the text as well as interesting case studies from the primary literature. Active teaching elements of the course include student team projects, journal article discussions, a field trip, and guest lectures and discussions from practitioners of conservation biology.

Student team projects: Because of the multidisciplinary nature of conservation biology, it is most often practiced in a team setting, as are other emerging ecological disciplines like ecosystem management and restoration ecology. Students that hone teamwork skills in this course will be more comfortable with that approach later in their careers. Each student will become a member of a 3-person team, whose membership will be assigned by the instructor to maximize the diversity of their collective expertise. This year, each team will develop a part (termed Team Project) of a major project that the class will collectively produce (termed Class Project). The Class Project is to update the Endangered Species Recover Plan for the Cape Sable Seaside Sparrow. This is not simply an academic exercise because this species may well go extinct during our lifetime. Moreover, the U.S. Fish and Wildlife Service could potentially be interested in any new insight that this class might develop. The last update to the Recover Plan was in 1999. The Class Project will focus specifically on developing and prioritizing a new set of Recovery Actions based in part on a Population Viability Analysis (PVA) that one or more teams will perform. The steps to producing the updated Recover Plan include:

1. Updating the background information with any new scientific data, population trends, or threats
2. Assembling the data needed to drive the PVA

3. Conducting a PVA using Vortex and using the model to evaluate how extinction probabilities change in response to:
    - genetic diversity
    - habitat quality, area, and configuration
    - translocation, captive breeding, and supplementation
    - catastrophic events
4. Developing and prioritizing Recovery Actions, which consider scientific findings (including the PVA), societal factors, uncertainty, and cost.

The final written document for the Class Project will include major sections for #1 above, each of the bullets in #3 above, and #4 above. #2 should be included as an appendix. In addition, the document should contain a short introduction describing the exercise and a conclusion section where any new insight is provided. Students may wish to create additional subsections for clarity. Format and style will follow the latest version of the Recovery Plan. Individual Team Projects must be chosen in collaboration with all teams and approved by the instructor prior to initiating any work. Each Team Project will consist of an oral Powerpoint presentation to the class and written sections of their portion of the Class Project. Team Project grades will be based on the quality of the written sections, the oral presentation, and an assessment by fellow team members. The latter will be the average score assigned by team members out of a total of 30 points.

Journal article discussions: The purpose of the journal article discussions is to get students reading the most current conservation biology literature, allow students to hone their reading and critical evaluation skills, and expose students to the most recent literature in topics we are studying. Students working in teams of 5 members of their choice will lead a class discussion on one new (2005-2006) scientific journal article on a topic scheduled to be covered during the week the assignment is due. A pdf of the article should be posted by a team member in the digital drop box on Blackboard at least one week prior to the discussion. Teams should focus on the scientific approach, major results, significance, and overall strengths and weaknesses. The articles can come from a range of scientific journals.

Field trip: Attendance on the field trip to Everglades National Park is strongly encouraged because the Everglades, like much of South Florida, is rich with ecological problems and applications of conservation biology. Everglades National Park is the country's most endangered National Park and one of its most unique natural areas. The field trip is an opportunity to see conservation biology in practice and have discussions while standing at the site. The date of the field trip will be decided by a student vote on the second day of class. The trip will take a full day, probably on a Saturday the latter part of October.

Guest Lectures: Three practitioners of conservation biology have agreed to provide the class with a lecture in their areas of expertise as well as some informal discussion afterwards. These discussions have provided students with useful feedback on their individual projects and have initiated the acquaintance with a new professional contact in their field of study. This year's speakers are Dr. Laura Brandt from the U.S. Fish and

Wildlife Service and the U.S. Geological Survey, Mr. Tylan Dean from the U.S. Fish and Wildlife Service, and Dr. Reed Bowman from Archbold biological Station.

Class participation: Active teaching techniques rely heavily on student participation in class discussions and projects. Student participation will be fostered, valued, and accounted for in final grades. Participation points could come from discussions with speakers, daily comments in class, or discussions on the field trip. These points are not free and must be earned.

Exams
There will be one mid-term exam and one final exam. Both will be essay format. The final exam will not be comprehensive. Make up exams will be given for excused absences as described in the Undergraduate Catalog under Attendance Policy. Makeup exams will be given within a week of the missed exam. Students should contact the instructor prior to missing an exam. If that is not possible, the student must contact the professor no later than 1 hour after the scheduled exam. Exams will cover lecture material, assigned papers, guest speaker lectures, video case study, and Discussion Team papers.

Time requirements
Students should expect to spend an average of 4-6 hours per week on this course outside of class plus one full day on a field trip. Students should allocate time each week for reading the text, reviewing articles, and working on their team project.

Grading criteria
Grades will be based on a student's performance on seven course components, with each component accounting for a percentage of the grade as follows:

Course component	Max points	% of Grade
Team project written sections	100	25
Mid-term exam	100	25
Final exam	100	25
Team member evaluation	30	7.5
Class participation	30	7.5
Team project oral presentation	20	5
Journal article discussion	20	5
Total	400	100

Final percentages will be converted to letter grades as below. Grades may be viewed through Blackboard.

Grade	Final Percentage
A	90-100
A-	89
B+	88
B	80-87
B-	79

C+	78
C	70-77
C-	69
D+	68
D	60-67
D-	59
F	<59

Communication devices
In keeping with University policy and professional courtesy, cell phones, beepers, and pagers should be disabled in class.

Students with disabilities
Students who require special accommodations to properly complete the course should register with the Office for Students with Disabilities so their accommodation needs can be met.

Course schedule
The course schedule may change as the course gets underway so students should monitor the calendar in Blackboard weekly for the latest schedule of activities and assignments.

Topic sequence	**Course activity**
1	Introduction; syllabus review, team assignments, lecture on introduction to Conservation Biology
2	Journal article discussion, vote on field trip date, lecture on conservation ethics
3	Journal article discussion, Vortex PVA intro, lecture on ecological economics
4	Journal article discussion, lecture on global biodiversity patterns and threats
5	Oral progress report on Team Project, guest speaker 1, lecture on habitat degradation and loss
6	Lecture on habitat fragmentation
7	M**id-term exam**
8	Lecture on overexploitation, species invasions, and climate change
9	Oral progress report on Team Project, lecture on conservation genetics
10	Lecture on species, landscape, and ecosystem approaches to conservation
11	Guest speaker 2, lecture on protected areas
12	Case study video Anna Cappa Island restoration, lecture on restoration
13	Team Project due, guest speaker 3, lecture on integrating conservation science and policy
14	Team Project oral presentations
15	Team Project oral presentations, course evaluation, team member evals.

16	**Final exam**